

CLAMPING TYPE TOOL BIT STORAGE DEVICE

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority of Taiwanese Application No. 092206276, filed on April 21, 2003.

5 **BACKGROUND OF THE INVENTION**

1. Field of the Invention

This invention relates to a tool bit storage device, more particularly to a clamping type tool bit storage device which can be attached to an object, such as a stem or shank of a hand tool or a user's arm, for storing multiple tool bits.

2. Description of the Related Art

A conventional tool bit storage device is generally in the form of a retaining box or a retaining band on which a plurality of retaining members are disposed for holding multiple tool bits therein. As such a conventional device cannot be attached to a hand tool or the user, it is inconvenient to exchange the tool bits for completing a project that includes fasteners with an assortment of driven end configurations, especially when the user is perched in a precarious position, such as a relatively high position.

There has been proposed a hand tool which includes a socket or a chuck on a stem for removably retaining tool bits therein. However, the stem has a complicated construction and increased dimension, thereby resulting in inconvenient assembly and manual operation.

SUMMARY OF THE INVENTION

The object of the present invention is to provide a clamping

type tool bit storage device which has a simple construction and which can be attached to a hand tool or the user's arm to permit convenient and quick access to the tool bits.

According to this invention, the clamping type tool bit storage device includes a clamping member and a plurality of retaining members. The clamping member includes a mount segment which extends angularly about a centerline and which terminates at right and left lateral ends that are spaced apart from each other by a first length in a longitudinal direction transverse to the centerline, and right and left jaw segments which are respectively formed with and which extend respectively from the right and left lateral ends such that the right and left jaw segments are spaced apart from each other in the longitudinal direction by a second length which is shorter than the first length. The clamping member is made from a material such that the right and left jaw segments are vested with a biasing force that urges the right and left jaw segments towards each other. The retaining members are disposed on the mount segment, and are angularly displaced from one another about the centerline. Each of the removably retaining members is adapted to retain removably a tool bit therein, and defines an access line parallel to the centerline such that the tool bit retained therein is oriented along the access line.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the present invention will become apparent in the following detailed description of the

preferred embodiments of the invention, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of the first preferred embodiment of a clamping type tool bit storage device according to this invention;

Fig. 2 is a perspective view of the first preferred embodiment when fitted onto a screwdriver;

Fig. 3 is a perspective view of the first preferred embodiment when attached to a user's wrist;

Fig. 4 is a perspective view of the second preferred embodiment of a clamping type tool bit storage device according to this invention; and

Fig. 5 is a cross-sectional view of the third preferred embodiment of a clamping type tool bit storage device according to this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before the present invention is described in greater detail, it should be noted that same reference numerals have been used to denote like elements throughout the specification.

Referring to Fig. 1, the first preferred embodiment of a clamping type tool bit storage device according to the present invention is shown to comprise a clamping member 1 and a plurality of retaining members 2.

The clamping member 1 includes a mount segment 12 which extends angularly about a centerline (X), which defines a receiving space 15, and which terminates at right and left lateral ends 125, 126 that are spaced apart from each other

by a first length in a longitudinal direction transverse to the centerline (X), and right and left jaw segments 13,14 which are formed integrally with and which extend respectively from the right and left lateral ends 125,126 such that the right and left jaw segments 13,14 are spaced apart from each other in the longitudinal direction by a second length which is shorter than the first length so as to define a clamping opening 11. The clamping member 1 is made from a flexible material, such as plastic and rubber material, such that the right and left jaw segments 13,14 are vested with a biasing force that urges the right and left jaw segments 13,14 towards each other. The mount segment 12 has outer and inner wall surfaces 122,121 opposite to each other radially relative to the centerline (X), and front and rear wall surfaces 123,124 opposite to each other in a direction parallel to the centerline (X). Each of the front and rear wall surfaces 123,124 interconnects the outer wall surface 122 and the inner wall surface 121.

The retaining members 2 are disposed on the mount segment 12, and are angularly displaced from one another about the centerline (X) for holding tool bits 3, respectively. Each of the retaining members 2 includes a joining portion 20 which is joined to and which is integrally formed with the outer inner wall surface 122 along a joining line that is parallel to the centerline (X), and which has right and left lateral sides opposite to each other relative to the joining line, and right and left grip portions 22,21 which respectively extend upwardly from the right and left lateral sides of the

joining portion 20 and angularly about an access line (X1) that is parallel to the centerline (X) to terminate at right and left lateral edges 221,211, respectively, that are spaced apart from each other in the longitudinal direction so as to acquire flexibility in the longitudinal direction. Thus, each of the tool bits 3 can be inserted into the retaining member 2 along the access line (X1) and be retained removably therein.

Referring to Figs. 1 and 2, in use, when the clamping member 1 is being fitted onto a stem of a screwdriver 4, the right and left jaw segments 13,14 are caused to move away from each other against the biasing force thereof upon frictional contact with a portion of the stem having a diameter larger than the second length so that the stem can be received in the receiving space 15 of the mount segment 12 through the clamping opening 11, and can be clamped tightly by the right and left jaw segments 13,14. Since the storage device is attached to the screwdriver 4 during the screwing operation, the user can quickly and easily access the tool bits 3, thereby facilitating exchange of the tool bits 3. Alternatively, as shown in Fig. 3, the clamping member 1 can be attached to the user's wrist.

Referring to Fig. 4, the second preferred embodiment of a clamping type tool bit storage device according to this invention is similar to the first preferred embodiment in construction. Unlike the retaining members which include joining portions 20 and grip portions 22,21 (described in the above embodiment), each of the retaining members 5 in this

embodiment has a retaining hole 51 which is formed in the front wall surface 123 of the mount segment 12 and which extends through the rear wall surface 124 so as to define the access line (X1).

5 Referring to Fig. 5, in the third preferred embodiment of a clamping tool bit storage device according to this invention, which is similar to the second preferred embodiment in construction, each of the retaining members 7 is formed in the outer wall surface 122 of the mount segment 12 of the
10 clamping member 1 and has a retaining hole 71 extending toward the inner wall surface 121. In addition, a magnetically attractive member 6 is embedded in the mount segment 12 between the outer and inner wall surfaces 122,121, and extends angularly about the centerline (X) so as to ensure that the
15 tool bits 3 which are made from magnetically attractive material, can be retained firmly in the respective retaining holes 71.

20 While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretations and equivalent arrangements.